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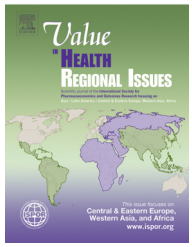

Social Cost of Substance Abuse in Russia

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ABSTRACT

Objective: To summarize results of studies that estimate the social costs of alcohol, tobacco, and illicit drug abuse in Russia. The purpose of these studies was to inform policymakers about the real economic burden of risky behaviors and to provide conditions for evidence-based and well-informed decision making in this area. **Methods:** The cost-of-illness method was applied to estimate the social cost of substance abuse. The intangible cost was not included in estimation. A prevalence-based approach was applied to estimate the tangible cost. For the estimation of direct costs, a top-down method was used. Indirect costs were estimated using two methods: the human capital and the friction cost. **Results:** In 2008, the social cost of substance abuse in Russia comprised 677.2 billion rubles if the friction cost method is applied and 1965.9 billion rubles if the human capital method is used. The social cost of substance abuse is defined to the greatest extent by alcohol consumption, comprising about 45% of the economic burden. Illicit drug use comprises about 30% of the economic burden and tobacco consumption 25%. **Conclusions:** The results of economic studies demonstrated that psychoactive substances impose a considerable economic burden on society. Analysis of the substance abuse social cost pattern shows that the main losses that society bears because of these behavioral risk factors fall outside the health care system and lay in other sectors of the economy such as social care, law enforcement, and productivity losses.

Keywords: alcohol, illicit drugs, social cost, substance abuse, tobacco.

Introduction

Risky lifestyle behaviors pose significant challenges to public health and impose on society an enormous burden expressed in epidemiological, economic, and social terms. Alcohol, tobacco, and illicit drugs are the main behavioral risk factors [1]. Country-specific studies devoted to the evaluation of the economic impact of substance abuse were carried out in many countries, but mainly in high-income ones. The results of the studies have demonstrated a significant drain on a country's economy in both budgetary expenditure terms and reduced productivity due to morbidity and premature mortality.

The rates of psychoactive substance use in Russia are among the highest in the world. But there are no country-specific systematic evaluations of the overall burden imposed on the Russian economy by substance abuse. Restricted data on different parts of the aggregate burden are published, mainly data on the epidemiological burden. It is important to have adequate social cost estimates to argue that policies to prevent and treat substance abuse should be among the highest priorities of the public policy agenda. Such estimates would give a broader picture of the problem looking at it not only from the health sector perspective but also from that of the economy as a whole.

The article summarizes the results of economic studies that examine the effect of substance abuse on the Russian economy in 2008 (for alcohol and illicit drug abuse) and 2010 (for tobacco consumption). For comparability of all three studies, the economic burden of tobacco consumption initially evaluated for 2010 was recalculated in 2008 prices using the consumer price index [2]. The objective was to provide reliable and credible estimates of the economic consequences of alcohol, tobacco, and illicit drug use in Russia, which are evaluated in accordance with internationally adopted approaches.

Methods

Study Design

Estimates of the economic burden of a disease can be made using three main approaches: the cost-of-illness method, economic growth models, and the full income approach [3,4]. The International Guidelines for Estimating the Costs of Substance Abuse recommend using the cost-of-illness method, which was applied in our studies [5]. This method enables the estimation of the tangible and intangible costs of a disease. The intangible cost, which reflects the cost of suffering and pain of substance users and others as well as the cost of lost life, was not considered in our studies.

Conflict of interest: The authors have indicated that they have no conflicts of interest with regard to the content of this article.

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Table 1 – Types of social cost included into estimations, by type of substance abuse.

Types of cost	Alcohol	Illicit drugs	Tobacco
Direct medical cost	+	+	+
Direct nonmedical cost including the following:	+	+	+
Law enforcement and the criminal justice	+	+	+
Research, public education, and prevention	+	+	+
Fires	+	–	+
Road accidents	+	+	
Services for orphans	+	–	–
Indirect cost including the following:	+	+	+
Premature deaths	+	+	+
Short-term disability due to illness	+	+	+

Note. "+" type of cost included, and "–" type of cost not included.

For estimating the tangible cost, the prevalence-based approach was applied. The tangible cost included direct and indirect costs.

Direct costs included the following main cost types: medical cost, law enforcement and the criminal justice costs, cost of research and prevention, and costs of fires, road accidents, and services for orphans. For estimation of direct costs, the top-town method was used. Direct medical cost included public expenditures on the provision of medical care for substance users and people injured by their actions, for diseases of direct substance etiology, and for substance-related diseases. Attributable fractions were used for determining the number of treated patients who received medical care for substance abuse–related conditions. Morbidity rates were evaluated on the basis of disease prevalence rates. Direct nonmedical costs were estimated using attributable fractions either evaluated directly on the basis of available Russian data and a set of assumptions or as reported in cost studies carried out in other countries.

Indirect cost included productivity losses in the workplace associated with premature death and short-term disability due to illness. Costs included into estimations by type of substance abuse are presented in Table 1. Indirect costs were estimated by using two methods: the human capital method and the friction cost method. Indirect costs were estimated in terms of the lost earnings stream of individuals. Productivity losses due to premature mortality were calculated on the basis of average age- and sex-specific earnings for the lost years.

Social cost can be estimated in terms of gross and net cost. The first considers only negative effects; the second takes into account any possible positive effects. Among the most pernicious behavioral risk factors (alcohol, tobacco, and illicit drugs), only alcohol is characterized by having some positive effects on health. As demonstrated by international research, a moderate consumption of alcohol in older ages has a preventive effect, leading to a decreased probability of cardiovascular diseases. That is why when estimating the social cost of alcohol consumption, the positive effects in terms of decrease in hospitalizations should be counted. Some studies that counted for both gross and net social cost of alcohol consumption demonstrate that the net social cost could be lower than the gross social cost by 12.5% to 14.5% [6,7]. In our study, only the gross social cost of alcohol consumption was estimated, assuming that positive effects in Russia could be insignificant due to much harder structure of alcohol consumption compared with that in other countries. This assumption is indirectly confirmed by the data presented in the research on the global burden of disease and injury and the economic cost attributable to alcohol use and alcohol-use disorders. In this research, the positive effect of alcohol consumption for Russia in terms of disability-adjusted life-years was evaluated as zero [8].

Data Collection

Our studies mainly relied on Russian official statistics and surveys carried out in Russia such as data of the Ministry of

Table 2 – Social costs of substance abuse in Russia, 2008 (million rubles).

Types of cost	Alcohol, 2008		Illicit drugs, 2008		Tobacco, 2008	
Direct cost including the following:	284,501.6		189,351.3		131,660.1	
Medical cost	161,980.2		19,910.5		109,686.8	
Nonmedical cost including the following:	122,521.4		169,440.8		21,973.3	
Law enforcement and the criminal justice	94,255.6		168,374.7		108.1	
Research, public education, and prevention	258.8		151.7		141.6	
Fires	17,786.6		–		21,723.6	
Road accidents	3,000.3		914.4		–	
Services for orphans	7,220.1		–		–	
	Friction cost method	Human capital method	Friction cost method	Human capital method	Friction cost method	Human capital method
Indirect cost	27,217.6	587,120.9	22,222.9	381,823.7	22,290.3	391,468.8
Social cost	311,719.2	871,622.5	211,574.2	571,175.0	153,950.4	523,128.9

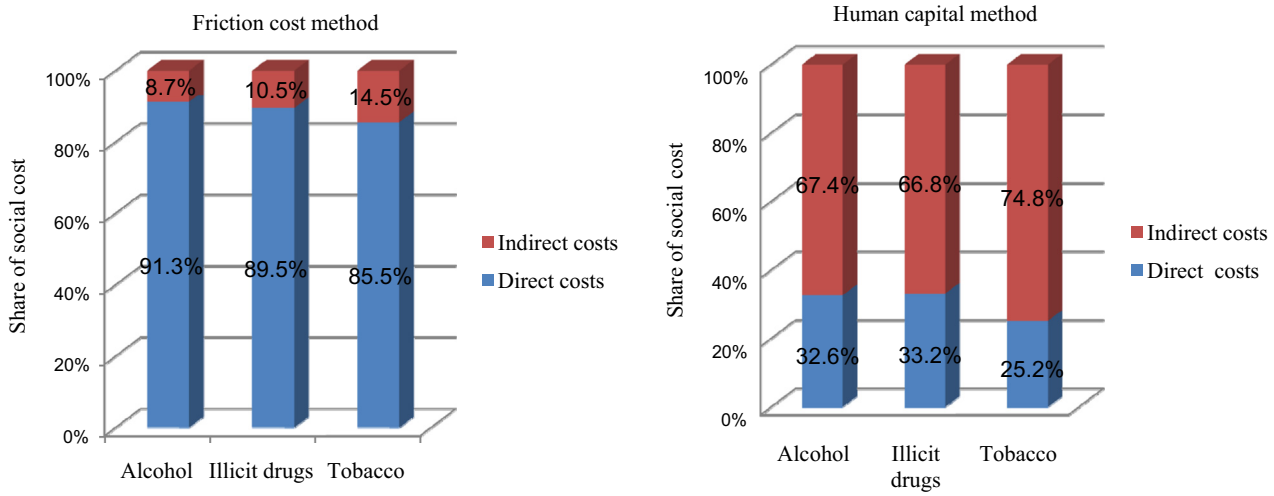

Fig. 1 – The pattern of substance abuse social costs by main category, friction cost, and human capital methods.

Health, the Federal Compulsory Health Insurance Fund, the Federal Treasury, the Ministry of Internal Affairs, the Ministry of Emergency Situations, and the Federal Statistical Service. Data from two representative surveys—the Russian Longitudinal Monitoring Survey and the Global Adult Tobacco Survey, Russian Federation, 2009—were used.

The main challenge in data supply was in the area of epidemiological data. There are not many published Russian epidemiological studies devoted to defining the effect of risky behavioral factors on morbidity and mortality. When data from the Russian studies were not available, World Health Organization data on attributable fractions for Russia were used. Only in a case when no data reflecting Russian realities were available, data of similar studies carried out in other countries were used.

Results

In 2008, the social cost of alcohol abuse comprised 311.7 billion rubles if the friction cost method is applied and 871.6 billion rubles if the human capital method is applied. The social cost of illicit drug abuse comprised 211.6 and 571.2 billion rubles, respectively. The social cost of tobacco comprised 154.0 and 523.1 billion rubles, respectively. The results of the estimates are presented in Table 2.

As can be seen from the above-presented figures, methods used for the evaluation of indirect costs can significantly affect the results of social cost estimates. In all considered studies, social costs calculated with the friction cost method are about 3 times lower than the same costs calculated when the human capital method is applied. This is explained by the economic approaches to the evaluation of productivity losses that underlie these methods.

Furthermore, the application of different methods could lead to changes in economic burden patterns. When substance abuse social costs are calculated with the use of the same method, the social cost pattern by main category is similar for all types of substance abuse (Fig. 1). If the friction cost method is applied, the bulk of the social cost is accounted for by direct cost (about 90% of aggregate costs for each risky behavior). If the human capital method is applied, the pattern is just the opposite—the bulk of the social cost is accounted for by indirect cost (about 70% of aggregate costs for each risky behavior).

At the same time from the point of view of direct cost pattern, significant differences are observed. The share of medical cost in total direct cost varies substantially among different types of substance abuse. For illicit drug abuse, the medical cost share comprises only 10.5% of total direct cost; for alcohol and tobacco use, this indicator increases correspondingly up to 56.9% and 83.3%. The state spends a substantial part of public health expenditures on medical care for patients with substance abuse. More than one third of public funds are spent on the treatment of such patients. The biggest share goes to the treatment of alcohol-dependent patients and the smallest to drug-dependent patients (Fig. 2).

Significant differences in direct nonmedical cost pattern are also observed because of the numerous and varied set of adverse consequences involved.

All three psychoactive substances are linked with crime. Tobacco is associated with crime to a much lesser extent than are others. Tobacco is mainly associated with illegal commodity turnover, such as smuggling, production, and sale of unbranded products. Alcohol and illicit drugs are associated much more than tobacco use with other types of crime. Alcohol overconsumption often leads to burglary, thefts, and crimes of violence and, especially in Russia, road traffic accidents with fatal consequences. In all countries, except for light narcotics in a few countries, the use of narcotics is illegal. Narcotics due to their illegal status are associated with assault, homicide, and other crimes of violence resulting from “wars” in the illicit drug market. Tobacco use is associated much more strongly with fire risk than are other substances.

Differences in the consequences of psychoactive substance use are reflected in the patterns of their direct nonmedical costs. Almost all the direct nonmedical cost of illicit drug use is

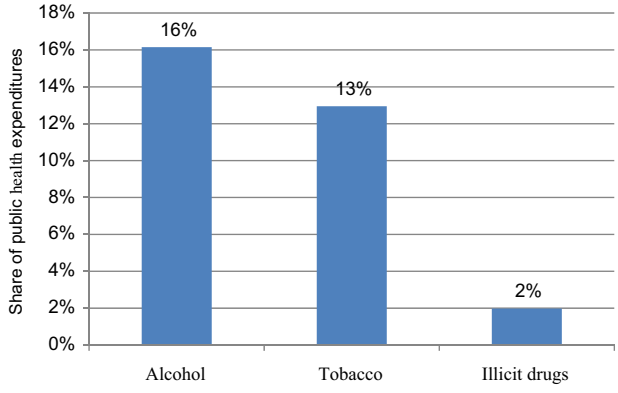

Fig. 2 – Share of public health expenditures spent on the treatment of patients with substance abuse (%).

Table 3 – Direct nonmedical cost by type of substance abuse.

Type of direct nonmedical cost	Alcohol			Illicit drugs			Tobacco		
	Total cost (million rubles)	Attributable fractions (%)	Cost associated with substance abuse (million rubles)	Total cost (million rubles)	Attributable fractions (%)	Cost associated with substance abuse (million rubles)	Total cost (million rubles)	Attributable fractions (%)	Cost associated with substance abuse (million rubles)
Research, public education, and prevention including the following:	414.4	62.46	258.8	257.6	58.89	151.7			141.6
Federal targeted programs	414.4	62.46	258.8	257.6	58.89	151.7	310.9	16.02	49.8
National Priority Project Health							306	30	91.8
Law enforcement and criminal justice including the following:			94,255.6			168,374.7			108.1
Law enforcement agencies and judicial system	665,893.2	13.5	89,895.6	665,893.2	22.81	151,862.2	665,893.2	0.016	108.1
Maintenance of medical departments of sobriety	4,360.0	100	4,360.0						
Federal Drug Control Service				165,12.5	100	165,12.5			
Fires	88,933.1	20	17,786.6				88,933.1	24.43	21,723.6
Road accidents	48,125.8	6.23	3,000.3	48,125.8	1.90	914.4			
Services for orphans	18,050.25	40	7,220.1						
Total direct nonmedical cost			122,521.4			169,440.8			21,973.3

assigned to law enforcement and criminal justice costs, including the cost of the Federal Drug Control Service. For alcohol, the share of this type of cost is lower, but still substantial. The lowest share of this type of direct nonmedical cost is observed in tobacco. The bulk of the direct nonmedical cost of tobacco is assigned to the cost of fires (Table 3).

Discussion

In our cost studies, two methods were applied to estimate indirect cost. This gave an opportunity to present minimal and probably midlevel evaluations of the costs. Application of the other often used method, willingness to pay, as cost studies of other countries demonstrate, most likely would give the highest level of social cost estimations.

Despite the fact that all our cost studies were carried out in accordance with internationally adopted methodological approaches, the estimates presented here should be considered with some caution.

It is important to emphasize that for several reasons the social cost estimates presented here could be interpreted as lower estimates of total societal losses associated with substance abuse. Because of data limitations, some types of social cost were not included in the estimates such as intangible cost as well as some types of direct and indirect tangible cost (e.g., household production activities and nursing home costs). Not many cost studies of substance abuse include the intangible cost in the estimations. In the studies in which intangible cost evaluations were included, however, the total social cost increases substantially. For instance, intangible cost comprises 25% of the total social cost of alcohol abuse in Europe [9]. A study by Australian researchers demonstrates that the share of intangible cost could be much higher, and for some types of substance abuse could even exceed the tangible cost [10]. As shown by their study, the social cost pattern by these categories varies substantially by types of psychoactive substances. The lowest share of intangible cost comprises 15.6% for illicit drug abuse; for alcohol overconsumption, it comprises 29.3%; and the highest share of 61.8% is demonstrated for tobacco consumption. Direct extrapolation of such proportion for Russian estimates is impossible due to differences in psychoactive substance consumption levels, labor market functioning, life expectancy, and other social, demographic, and economic factors. Thus, estimates of social cost in Russia presented in the article represent a substantial part of the aggregate social and economic losses associated with substance abuse, but still they are only part of those losses.

The social cost of illicit drug abuse is particularly underestimated. Unlike statistics on the consumption of other types of psychoactive substance, statistics on the prevalence of illicit drug consumption are less reliable. It is impossible to evaluate the real prevalence rate because of the illegal status of narcotics in all countries; a considerable part of drug users will be always latent.

The biggest challenge of the studies arose from the lack of information on adequate attributable fractions used for estimating direct and indirect tangible costs. Often, estimates of substance abuse attributable fractions for mortality and morbidity made for Russia varied considerably. In our studies where data for Russia were available, conservative estimates were used, which could lead to underestimation. When domestic studies were not available, attributable fractions used in foreign studies were applied to our estimates. To a certain extent, this affected the reliability of economic evaluations. For example, there are no published Russian studies on illicit drug attributable fractions for particular categories of crime. The attributable fractions published in an American study were used in our estimates [11]. The adoption of such data to Russian realities should be treated with caution because of differences in legal definitions and crime classifications. Such estimates, however, show initial approximations of costs of crime associated with illicit drug abuse. Disregarding such costs because of a lack of domestic data could be considered as a bigger mistake assuming that such costs do not exist.

In spite of all these reservations, the results of our cost studies could be considered as the first attempt to provide complex realistic estimates of social and economic losses associated with substance abuse in Russia, which was made in accordance with internationally adopted methodology and based on available data.

Conclusions

The substance abuse social cost estimates presented here should be considered as underestimates because not all types of cost were included. For example, intangible cost was not included in the estimates.

The studies considered in the article reveal that the state devotes tremendous resources to managing diverse effects of substance abuse through providing medical and social care, foster care, incarceration, and various other services. About one third of the public health expenditure is spent on treating substance abusers. The studies demonstrate that direct medical costs are not the main part of the economic burden of substance abuse. Analysis of the substance abuse social cost pattern gives evidence that the main losses that society bears because of these behavioral risk factors fall outside the health care system and lay in other areas of economy such as social care, law enforcement, and productivity losses. The study's results show that the spread of considered risk factors substantially affects the country's productive capacity.

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